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TIME-BUDGET SURVEYS

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TIME-BUDGET SURVEYS

I. Introduction

1. Time budget surveys have entered into the field of household surveys only recently although in developed market economies and centrally planned economies, time-use studies have a relatively long history in social research and government planning. In this kind of survey data are collected on the use of time for the entire range of human activities, e.g., earning, learning, domestic life, household chores, community life, recreation, leisure, etc., with each major category being sub-divided further into component activities depending on the objectives of the survey. Such time use data have found an important place in the United Nations System of Social and Demographic Statistics (SSDS) 1/ and the United Nations Guidelines on Social Indicators. 2/

2. In Africa, there have not been many time-budget surveys or studies, although in Botswana, a time-budget survey was conducted in 1974/1975 as a minor component of a much larger survey on income. However, it was reported that "severe technical problems were encountered in processing and compiling the time-use data, and no results have yet been released". 3/ There is some mention of time use studies having been undertaken in Egypt and Sierra Leone but no details are available. In Kenya, in the course of Integrated Rural Survey, 1974/1975, data were collected on farm labour inputs in man-hours day by day for a week but in subsequent rounds this information seems to have been dropped. In general, the trend in developing countries so far has been either to conduct small scale time-budget surveys (covering all activities) restricted to a few selected areas or to collect time-use data limited to a few selected activities in the course of other surveys, like labour force surveys, farm management studies, social surveys, etc. In that context, broad technical details of time-budget surveys will be presented in this paper leading to a discussion on how in a simplified form the techniques can be used in labour force surveys.

II. Objectives and uses

3. The main purpose of a time-budget survey is to collect data which will show how much time is spent on different activities in the course of, say, a representative day, by different sections of the population and the distribution over the day of time used for different purposes. These data are needed for an analysis of productive, household and leisure activities covering many aspects of human life for which data are not otherwise available from the usual social, demographic and related economic statistics. The analysis is facilitated because time is the basic unit of measurement and hence the data are amenable to a greater degree of disaggregation than the traditional concepts of participation and non-participation. Also, it becomes easy to understand the trade-off between one activity and another. The analysis leads to

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1/ Towards a System of Social and Demographic Statistics - Series F, No.18 - United Nations, Department of Economic and Social Affairs, Statistical Office, 1975.

2/ Social Indicators: Preliminary guidelines and illustrative series, Series M, No.63 - United Nations, Department of International Economic and Social Affairs, Statistical Office, 1978.

3/ Progress report on the development of statistics of time-use. (E/CN.3/519) - United Nations, Statistical Commission, April 1978.

a better appreciation of questions of economic and social concern, e.g., nature of income earning activities, particularly marginal and auxillary activities; utilization of labour, particularly of women and children; extent to which earning activities impinge on other demands on time; whether individuals have sufficient time for personal, family care and social obligations; leisure time available and activities; whether individuals have to spend an inordinate amount of time in travelling to work, school, market, recreational facilities and so on. An understanding of such problems is valuable for planning and policy making to improve levels of living and the quality of life of the people and provide the necessary public services and welfare facilities.

III. Techniques

4. Time-budget surveys follow the usual pattern of household surveys. A sample of households is selected from the population under study. For the household as a whole and for individual members, the relevant background data on economic, social and demographic characteristics are collected and then for each member above a specified age details are collected about time spent on all kinds of activities.

5. In small-scale research studies, time-use data are often collected by the personal observation method. This involves in-depth observation by a trained researcher of a small sample of households during an extended period of residence in the locality being studied. This technique is obviously not suitable for large-scale surveys but can be a useful adjunct to pilot surveys for gaining insights into the data collected through test-questionnaires. For larger surveys, a technique used by some of the developed countries is self-reporting by respondents in a structured daily diary which is checked from time to time by field enumerators. This technique has obvious limitations in the conditions of developing countries. Therefore, in developing countries, the necessary data are most often collected by personal interviews conducted by trained enumerators as in the case of other household surveys.

6. In collecting data through personal interviews, two approaches have been used, namely a time-oriented approach and an activity oriented approach. Both the approaches have one thing in common, i.e., a predetermined, classified, and coded list of activities. In preparing such a list, first all the major behavioural areas of activities are taken e.g., work, looking for work, housework, other household obligations, child care, personal needs, travel, study or training, religious participation, civic or other organizational participation, recreation, leisure, etc. Within each major area the component activities are specified. This classification of activities has to be developed in keeping with the objectives of the survey and on the basis of advance pilot studies. At present there is no accepted standard classification and the classifications used in the surveys conducted in different countries vary a great deal. In general, the classification should not be too long as the resulting data base will be unmanageable. However it should not be so short as to restrict the usefulness of the survey for specialized analysis. In a Bangladesh survey, based on the time oriented approach, the classification covered some 100 activities (see Annex I). In a proposed multi-national ILO survey on women's role and demographic change, based on the activity oriented approach, the classification runs into more than 50 activities (see Annex II) mainly relating to women.

7. The classification of activities is the basic tool for the collection of time-use data and enumerators have to be made fully familiar with it before they are sent out to collect the data. In the time-oriented approach, the enumerators use a schedule in which the times are chronologically entered with a convenient starting point which is determined from pre-test and local conditions, e.g., waking-up time, meal time, prayer time, start of school, etc. The times are pre-recorded in this schedule with intervals of 10 or 15 minutes for a 24-hour period covering the reference period of "yesterday". Following the chronological order, the enumerator records the activities of each respondent performed during the previous day on the basis of questions developed through pilot tests. The questions generally fix the time for certain easily remembered activities first, e.g., morning meal, mid-day meal, evening meal, school time, etc., and then probes into all the activities in between. For recording the activities, the enumerator follows the activity classification as far as possible, so that it is easy to extract the time spent on different activities according to the standard list.

8. In the activity oriented approach, time-use data are recorded according to the classified activity list, which is reproduced on the schedule. The enumerator is given a set of questions, formulated on the basis of pilot tests, for conducting the interview. Taking up the first activity recorded on the schedule, the enumerator enquires whether that activity was performed by the person concerned during the reference period, which may be previous day or week etc. If the answer is "yes", the enumerator proceeds to find out the time spent on it, as estimated by the respondent, in terms of the specified unit, e.g. hours/minutes, days, etc. The enumerator then takes up the second activity and repeats the procedure. In this way he/she exhausts all the activities recorded on the schedule. In a proposed multi-national study 4/ on women's role and demographic change, ILO intends to collect time use data as a part of the survey by the activity oriented approach in respect of four different reference periods, namely yesterday (hours/minutes), number of days in past seven days or a week, number of weeks in the past season or year 5/and a typical day (hours/minutes). It is usual to collect retrospective data in an activity oriented approach. The ILO study proposes to collect several other types of information connected with time-use, e.g., occupation or nature of activity, for whom the activity was performed (family or self, relatives, non-relatives), mode of payment (with details), distance from dwelling to where activity was performed and the number of children normally with the person when the activity is done.

IV. Some practical problems

9. Collection of time-use data presupposes a developed sense of time on the part of both enumerators and respondents. In developing countries, respondents in rural areas may not be oriented to time schedules involving clocks and calendars.

4/ "Research on women's roles and demographic change - Survey questionnaires for households, women, men and communities with background explanations" - World Employment Programme Research, ILO, Geneva, 1980 (Restricted circulation)

5/ In rural areas three visits are stipulated and hence the reference period will be past season. In urban areas only one visit is stipulated and hence the reference period will be past year. The intention is to obtain approximate, not precise, estimates of time-use, giving rough orders of magnitude.

In that case enumerators have to look for other time reference periods, e.g., meal-times, position of the sun, school-times, etc., which are more meaningful to the population being studied. On the basis of such reference periods, it is possible to break the day into shorter intervals and then prod the memory of respondents to recount the sequence of events and fix the time for each. Another complication in time-use studies is the presence of concurrent activities. Housework and child care, work and conversation, recreation and socialization etc. can go on simultaneously. In consequence, some activities which are secondary in the respondent's view may be omitted or two concurrent activities which were pursued for, say, two hours may be reported as if each lasted two hours (the activity-oriented approach is more susceptible to this). Lastly, accurate reporting on time-use requires a knowledgeable respondent. It is best to interview each individual to collect data on his/her own time-use; but this is not always practicable. At the very least, an adult male member and also an adult female member have to be interviewed from every household.

10. Of the two approaches, time oriented approach and activity oriented approach, the former definitely yields more reliable data. The recall period is short (24 hours) and memory is aided by the sequential review of previous day's activities. The recording procedure is simple and yields information on concurrent activities. Several validation experiments have concluded that the time oriented approach based on "yesterday interviews" generates aggregate time figures that do not appear to be seriously inflated or deflated in favour of or against any particular set of activities, and it also produces results that are reliable. However, the time oriented approach has one serious disadvantage, namely its high cost because of the need for repeated visits to the same sample household to get a representative time-budget over time. Obviously, data for a single day will not be sufficient. The reference days must be spread over working days and non-working days, weeks, seasons and perhaps a year to catch activities which occur fairly regularly but infrequently. Naturally repeated visits to sampled households increase the cost and bring about many operational problems.

11. The activity oriented approach, on the other hand, is cheaper because a longer reference period can be used; but lengthening the reference period means diminishing the accuracy of data. There have been some attempts to test the reliability of recall of time-use over longer periods but the results are inconclusive. Obviously there can be compromises between inquiring only about the previous day and inquiring about the past 12 months depending on the magnitude of the permissible error users of data can afford. Such compromises have to be effected through the choice of reference period and rotation of households. What this compromise will be depends on the circumstances of each case -- there is no universal solution for the problem. Apart from cost effectiveness, other advantages claimed for the activity oriented approach are that activities of short duration are more likely to be reported in this approach, it is easier to collect additional information on some of the activities like earning and learning and processing and analysis of data are simpler.

V. Adaptation to labour force surveys

12. In developing countries most time-budget surveys have been conducted on a small scale limited to a few villages or one or two cities under close supervision. The results have been used mainly for diagnostic purposes. The techniques for such surveys are still evolving and a good deal of experiments will be necessary before they can be applied to surveys on a national scale. The main constraint is the practicability of getting reliable time-use data for all kinds of activities at a reasonable cost under conditions where the sense of time is not well developed among the majority of respondents. However, the basic approaches of time-budget surveys are relevant to many fields of social, economic and demographic surveys and research. One such field where the approaches can be usefully adapted is the labour force survey and that is what was proposed in the technical plans for labour force surveys (E/CN.14/SM/32, 33 and 34). For example, in the approach outlined for labour force surveys, a short list of relevant activities was proposed to determine the labour force status and for gainful activities, details of hours worked were to be collected day by day for a reference period of a week. There is obviously some resemblance to the activity oriented approach of time-budget surveys, but the application had to be very much simplified taking into account the ground conditions for the collection of data.

13. A labour force survey is concerned with the measurement of the actual and potential supply of labour for certain types of activities but not all. Economic activity (work and looking for work) is concerned with actual supply of labour. Studies/training, domestic chores and voluntary work are sources of both the actual and the potential supply of labour because some of the persons engaged in these activities perform an economic activity part of the time and some others are either available for economic activity or are preparing for economic activity. Therefore, only these five(work, looking for work, studies/training, domestic chores, voluntary work) activities need to be taken into account in a labour force survey, whereas a time-budget survey covers the whole range of human activities including participation in social and community life, recreation, leisure, etc. The illustrative list of activities suggested for the labour force survey comprises some 20 component activities only under the five major headings whereas in a time-budget survey the list may run to 100 or more activities.

14. In the labour force survey the list of activities is used to find out in what activities a person was engaged during the reference week without trying to go into the time devoted to each activity, as is the practice with time-budget surveys. This further simplifies collection of data. However, if a person was engaged in more than one major activity out of the 5, in a labour force survey the enumerator tries to find out the one on which longest time was spent to determine the primary activity. This does not involve actual measurement of time but only a relative assessment of time divided among two or three major activities.

15. Only in the case of "work" or gainful activity, are time-use data proposed to be collected in a labour force survey along with other relevant details like occupation, industry, employment status, etc. This is done on a separate schedule devoted to gainful activities. It is easier to recall time spent on gainful activities to the exclusion of all other kinds of activities. For regular workers, the working time is more or less fixed and any variations on a

particular day of the reference week are well remembered. The problem is to have an estimate of the time worked by intermittent workers but several simplifications have been provided for this purpose. The list of activities specifies what are gainful activities and this not only helps recall but also minimizes definitional errors. Details of working time are to be collected day by day for a short period of one week. In most cases this will be the past week but for persons "with job but not at work" the reference period will be farther away and to that extent higher recall lapses will have to be allowed. If pilot surveys show that a recall period of a week is too long for collection of reliable data, the period can be shortened by organizing more than one visit to the sample household. Time is also to be recorded in terms of nearest hour, which means that minor gainful activities can be ignored. Finally, the time oriented approach can be suitably adapted, if necessary, to collect the data more reliably.

VI. Concluding remarks

16. There are many practical difficulties in conducting a comprehensive time-budget survey on a national scale in the conditions of developing countries. It is, therefore, usual to take up such surveys on a small scale as diagnostic studies for examining the pattern of time-use in relation to specific problems like division of labour between household and society, division of labour within the household, women's role and status, intensity of work effort and productivity, pressure on men, women, boys and girls especially in low income and disadvantaged segments, etc. On a larger scale, limited time-use data in a simplified form can usefully be collected in connexion with many kinds of socio-economic surveys.

Bangladesh: Revised detailed activity codes

1. Collecting fodder and feed for animals
2. Animal husbandry
   - 2A Tend cattle
   - 2B Tend goat
   - 2C Tend chickens, ducks, geese
   - 2D Other animal care
3. Paddy cultivation
   - 3A Clear land
   - 3B Plough or level
   - 3C Sow, transplant
   - 3D Weed
   - 3E Other pre-harvest
   - 3F Harvest and carry
   - 3G Carry only
   - 3H Thresh
   - 3I Dry or stack straw
   - 3J Seed processing, storing
   - 3K Other harvest and post-harvest activity
4. Jute production
   - 4A Clear land
   - 4B Plough or level
   - 4C Sow
   - 4D Weed
   - 4E Harvest and bundle
   - 4F Carry
   - 4G Strip
   - 4H Wash
   - 4I Dry
   - 4J Other associated activities
5. Other crop production — N.B. Specify crop, for A-G
   - 5A Clear land
   - 5B Plough or level
   - 5C Hoe
   - 5D Weed

5E Pick or harvest

5F Carry to bari

5G Other associated activities

5H Activities associated with tree cultivation

5I Activities associated with homestead (bari) plant or vine production

6. Unspecified cultivation activities

7. Marketing of farm produce

8. Fishing

9. Handicraft production

10. Preparation of food for sale

11. Trading

12. Business

13. Self-employed skilled service

14. Agricultural wage work N.B. Specify crop

14A Sowing, planting

14B Weeding

14C Harvesting/picking

14D Post-harvest processing (include husking, parboil, drying, etc. strip and wash jute)

14E Other activity

15. Non-agricultural wage work

15A Casual, temporary labour (e.g. daily)

15B Permanent (any work for which regular weekly or monthly salary is given); for both include travel time

16. Construction, repair of own home and property (not already listed in 1-15)

16A Constructing new hut, structure

16B Repair of hut, structure

16C Other repair, construction

17. Other directly productive activities

17A Hunting

17B Gathering vegetables, wild fruit, other food

17C Begging

17D Other

18. Looking for wage work
    - 18A Looking for agricultural work
    - 18B Looking for non-agricultural work
    - 18C Looking for work (unspecified)
19. Exchange, communal, free work
    - 19A Exchange work
    - 19B Communal work (e.g. Brahmaputra digging, but not from jute mill or via other type of employer)
20. House work
    - 20A Carry water
    - 20B Wash or clean house, clothes, dishes, others
    - 20C Collect firewood, tinder, other fuel (include making dung sticks)
    - 20D Other household tasks: include serve meals, prepare houka, run errands, carrying, fetching, light lamp, etc.
21. Shopping (household)
22. Food preparation
    - 22A Cook
    - 22B Wash food, cut, peel, skin, etc.
    - 22C Grind spices, dal
    - 22D Other food preparation
23. Rice processing
    - 23A Parboil
    - 23B Husking
    - 23C Cleaning, winnowing rice or paddy
    - 23D Drying rice or paddy
    - 23E Other
24. Child care
    - 24A Look after own children (include breast feed)
    - 24B Look after other children (younger brothers and sisters, other's children)
25. Care of sick and elderly
26. Personal maintenance (other than rest and sleep)
    - 26A Bath/toilet
    - 26B Eat

27. Rest/idle
    - 27A Rest/play/gossip/smoke/read for pleasure, etc.
    - 27B Sleep during the day

28. Religious activity
    - 28A Pray (home or mosque)
    - 28B Read Koran
    - 28C Madrassa
    - 28D Other religious activity (e.g., Eid)

29. School and study
    - 29A Attend school or tutor (include travel time)
    - 29B Study (other school-related activity)

30. Formal social activity

31. Informal social visit

32. Sick

Source: Progress report on the development of statistics of time use - E/CN.3/519 United Nations, Statistical Commission.

ILO classification of activities for a multi-national study on women's roles and demographic change

Activity

1. Crop cultivation for family
2. " " " "
3. " " " "
4. " " " "
5. Home gardening
6. Crop cultivation for others
7. " " " "
8. " " " "
9. " " " "
10. Improving land for family (e.g. levelling, fencing, canals)
11. " " " " " " " "
12. Fishing, hunting
13. Animal husbandry for family
14. " " " "
15. Animal husbandry for others
16. " " " "
17. Non-agricultural wage and salary
18. " " " " "
19. " " " " "
20. " " " " "
21. Self-employed business or professional
22. " " " " "
23. Handicraft
24. Service for others (e.g., laundering, sewing, cleaning)
25. " " " " " " "
26. Trading
27. Other income earning
28. " " "
29. Home construction, repairs or improvements for others (including floors)

30. Home construction, repairs or improvement for family (including floors)
31. Gathering sticks, other fuel, for family
32. Gathering "wild" food for family
33. Fetching water for family
34. Bringing food to fields
35. Shopping for food, clothes
36. Other errands
37. Cooking for family
38. Cooking for hired labourers
39. Preparing food for storage, processing food for family
40. " " " " " " " "
41. Housework for family (including cleaning)
42. Washing clothes for family
43. Child care (main purpose) for family
44. School attending/studying for day school
45. Training (e.g. literacy, extension classes)
46. Leisure, rest, recreation
47. Visiting, talking with others
48. Attending festivals, religious and social functions
49. Illness, receiving medical care
50. Looking for work while unemployed
51. Other
52. "
53. "
54. "

Source: Research on women's roles and demographic change; survey questionnaires for households, women, men and communities with background explanations, ILO, Geneva, 1980.